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[032] The projectile according to the invention illustrated by Figures 1 through 3 is designed principally for use by public security services. One of its essential features is that it can be stopped by a bulletproof vest, specifically a bulletproof vest consisting of 24 layers of sheets of synthetic material such as, for example, the commercial brand KEVLAR<sup>TM</sup> @ aramid fiber or any equivalent material with similar characteristics.

[033] As shown in Figures 1 through 3, projectile 10 comprises an approximately conical nose 11 and a cylindrical cap 12. Conical nose 11 has an angle at the tip ranging from 30 to 45° and preferably equal to approximately 38°. It is provided with a central flat portion 13 that may be larger or smaller and which is essentially circular in shape, with a diameter ranging from 10 to 50% of the diameter of the projectile at the base of nose 11 or cap 12. Preferably, the diameter of flat area 13 essentially ranges from one-fourth to one-third of the diameter of projectile 10. On its lateral surface, nose 11 has at least two hollow areas or portions (indentations) 14 that are essentially symmetrically disposed relative to the axial planes and are formed either by stamping, milling, or some other appropriate machining method. The exemplary embodiment described and shown (see Figure 3) shows that generally conical nose 11 has five hollow portions 14 regularly spaced along axes 17 that each form a 62° angle with the adjacent axis 17. The number of hollow portions 14 and the angular position may vary according to the embodiment and depends in particular upon the caliber of projectile 10. Each hollow area 14 has a rounded base allowing it to feed correctly so the cartridge containing projectile 10 does not become lodged in an automatic weapon. In addition, hollow areas 14 are curved from one edge to the other. The absence of any axial ridges prevents rotation of projectile 10 from being disturbed as it exits the barrel of the weapon.

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[036] Projectile 10 is preferably made of a relatively soft metal such as copper or one of its alloys. By way of non-limiting example, the projectile 10 which is described and which was used for the experiments has a diameter of 8.95 mm, a 9 mm parabellum caliber and weighs 5.6 grams. The initial speed in a GLOCK ® 19 handgun with a 10 centimeter barrel is 400 m/s, with a kinetic energy of about 450 joules. ↔

[039] In order for projectile 10 to resist the high pressure generated by powder combustion, a blocking means 16, for example a steel bolt, specifically a PARKER [[TM]] ® type bolt with a conical head, may engage inside rear cylindrical zone 15d and central zone 15b of groove 15. This bolt can be replaced with any other blocking means such as a hard metal block located in the rear zone 15d of groove 15. If blocking means 16 is a bolt, the central zone is at least partially threaded so this bolt can be screwed onto it. Intermediate zone 15c and rear zone 15d are disposed to receive the head of this screw. ↔

[041] The fact that projectile 10 is hollow ensures that it cannot penetrate a bullet proof vest made of 24 layers of KEVLAR [[TM]] ® aramid fiber or the equivalent. Cavity 15 is approximately 3 millimeters in diameter in central zone 15b and extends into nose 11, allowing the nose to deform at the moment of impact. Nose 11 of projectile 10 also deforms upon impact with a vehicle windshield. However, projectile 10 passes through this screen with no noticeable loss of mass and blocking means 16 remains in place. ↔

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[043] Projectile 20 also differs from projectile 10 in that it has no central cavity 15. It is massive and preferably made of brass or an alloy with similar physical properties, but not from an alloy containing lead. It may be manufactured by either hot or cold stamping and hollows 24 may be made using any appropriate machining method. Experiments have been performed using a projectile 20 such as the one described that is 8.97 mm in diameter, 9 parabellum caliber and 5.6 grams in weight and with an initial speed in a GLOCK 19 ® handgun having a 10 centimeter barrel of 440 m/s and energy of approximately 450 joules. ◆◆

[044] The behavior of projectile 20 along the trajectory is essentially the same as that of projectile 10 except it is slowed to a lesser extent due to the absence of a flat central portion on nose 21. In addition, it has greater capacity for perforation, since experiments have shown that it penetrates a minimum of 48 layers of KEVLAR [[<sup>TM</sup>]] ® aramid fiber or the equivalent. ◆◆

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